

WSDOT GUIDANCE—ESA, TRANSPORTATION, AND DEVELOPMENT: ASSESSING INDIRECT EFFECTS

Under the Endangered Species Act, federal agencies must consult with NOAA Fisheries and USFWS to determine the effects of federal project actions on threatened and endangered species. WSDOT is designated to consult on behalf of FHWA for informal consultations.

The consultation process includes an analysis of direct and indirect effects of the action, as well as the effects of any interrelated or interdependent activities, on listed species. During the Section 7 consultation, questions may arise regarding the relationship of a transportation project to development in adjacent or nearby areas and whether such development is considered an *indirect effect* as defined under the ESA. This document provides general guidance for reviewing and analyzing only the indirect effect relationship between transportation and land use development during the consultation process. Other types of transportation project effects that require analysis are not addressed here. Note that WSDOT and FHWA are not required by Section 7 to mitigate the indirect effects of an action.

Background

Within the state of Washington, development is managed through the Growth Management Act (GMA). The law requires that infrastructure investments (not just transportation investments, but water supply, sewage treatment, parks, and schools) must be adequate to serve a development at the time the development is available for occupancy without decreasing current service levels below locally established minimum standards.

“Concurrent with the development” shall mean that improvements or strategies are in place at the time of development, or that a financial commitment is in place to complete the improvements or strategies within 6 years (RCW 36.70A.070 Comprehensive Plans – Mandatory Elements).

An important component of the Growth Management Act is the designation of *urban growth areas* to accommodate urban growth 20 years into the future, to restrict the advance of urban sprawl into rural areas, and to protect resource lands. The designation of urban growth areas may increase the intensity of commercial and residential land uses and the density of development, thereby creating the opportunity for alternative travel options (e.g., rail, bus, carpool/vanpool, and bicycle/pedestrian modes), as well as reducing the need for and cost of extending infrastructure beyond the urban growth boundary.

Another important component of the Growth Management Act is the protection of critical areas, which include wetlands, frequently flooded areas, aquifer recharge zones, geologically hazardous areas, and fish and wildlife conservation areas. The law requires that local jurisdictions designate and protect these critical areas by ordinance.

The Growth Management Act was amended in 1995 to require that counties and cities “*include the best available science in developing policies and development regulations to protect the*

functions and values of critical areas. . . . In addition, counties and cities shall give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries.” This amendment provides the direction for jurisdictions with weak critical area protections to do more. The need for including good science has become a requirement as fish recovery is implemented under the Endangered Species Act. Also, counties and cities were required to review and, if necessary, revise their plans and regulations by September 1, 2002, to be consistent with the statute and its amendments. However, consistency with critical area regulations developed under the Growth Management Act does not necessarily ensure that a project will not result in indirect effects on listed species or critical habitat.

Guidance for Preparing Biological Assessments

This guidance has resulted from discussions among the USFWS, NOAA Fisheries, FHWA, Office of Community Development, and WSDOT, with input from local agencies and stakeholder groups, in 1999 and 2000. It was updated in 2003 as a result of coordination with NOAA Fisheries, USFWS, FHWA, and WSDOT. The guidance provides general recommendations for the consideration of indirect effects in biological assessments prepared for ESA Section 7 consultations on transportation projects. The intent is to provide a framework to facilitate the appropriate treatment of indirect effects in a biological assessment. This guidance is expected to be an evolving document; as understanding of biological aspects of indirect effects increases, more definitive recommendations may result.

This document describes a step-by-step approach to assess indirect effects by posing a series of questions about the proposed project. These are shown graphically with a decision-making flowchart, reproduced here in Figure 1, and explained in the text that follows. Table 1 gives examples of project types, potential land use changes, and the level of assessment usually required in a BA.

This guidance pertains only to indirect effects. It is assumed that any project undergoing Section 7 consultation is also evaluated for direct effects, using ESA regulations and other guidance.

General guidance on indirect effects and ESA consultation are also found in *ESA Section 7 Consultation Handbook*, March 1998, pages 4-27 to 4-29. This guidance is not intended for NEPA cumulative effects analysis; while there is some overlap with ESA consultation, there are important distinctions between the two regulatory processes.

Definitions

The Action

Analysis for ESA consultation must address the proposed action, including any interrelated and interdependent actions. Interrelated actions are those that are part of the larger action and dependent on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration.

The Effect

According to ESA rules and regulations, *direct effects* occur at or very close to the time of the action itself. Examples include construction noise disturbance, loss of habitat, or sedimentation that results from construction activity. *Indirect effects* are those that are caused by the action and are later in time (after the action is completed) but still reasonably certain to occur. Examples include changes to ecological systems, such as predator/prey relationships, long-term habitat changes, or anticipated changes in human activities, including changes in land use. The geographic extent of these effects is the *action area*, defined as all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action.

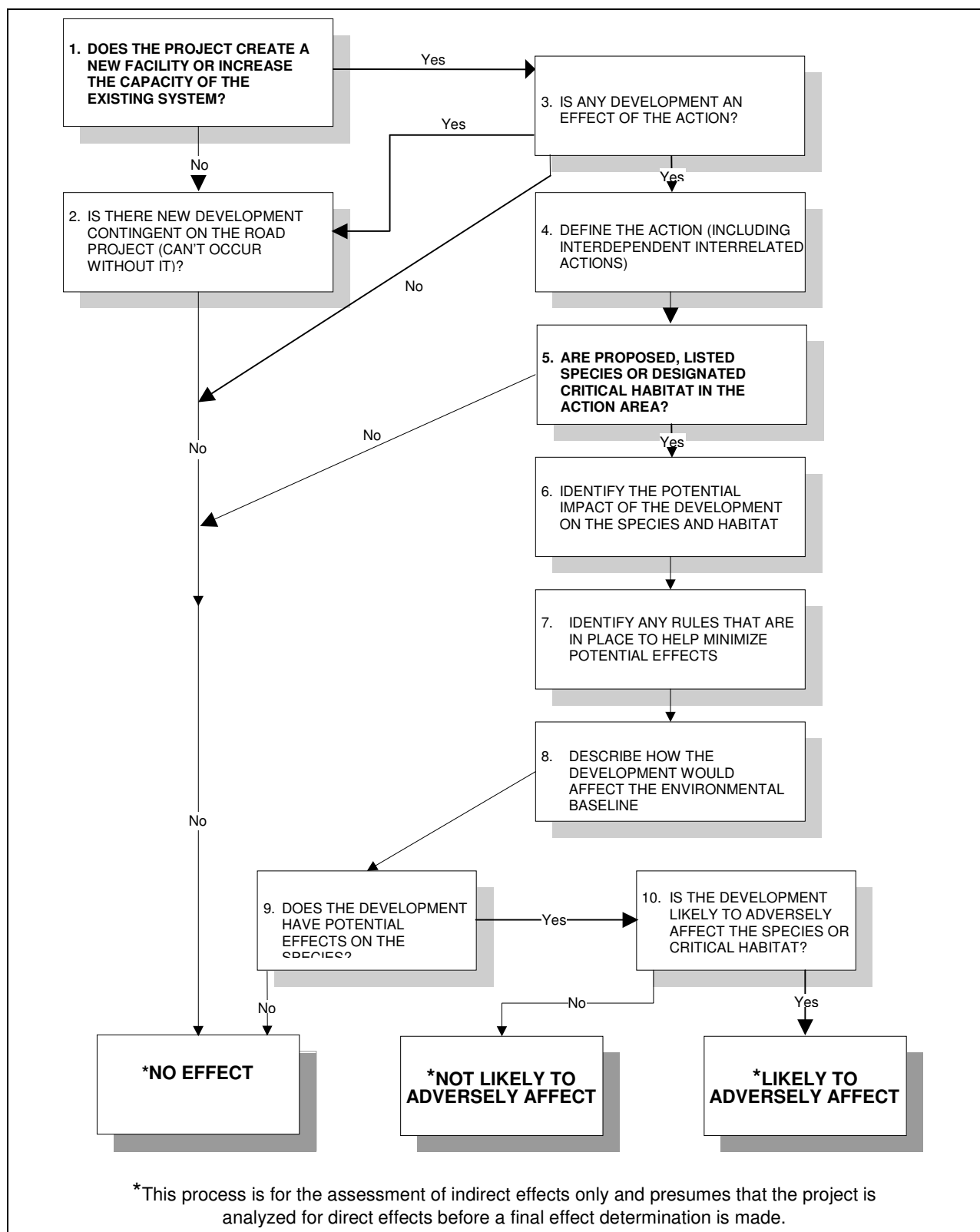


Figure 1. Indirect effect determinations based on transportation and land development.

Table 1. Project screening for indirect effects and effect calls in light of indirect effects.

Project Category	Project Description	Potential Land Use Changes	Analysis Need for BA	Effect Call (Considering Indirect Effects Only)
Design standards upgrade	Improve roadway design to engineering standards for lane width, curb, gutter and sidewalk, and other geometrics.	Very limited potential to cause land use change	Assessment in BA that details why project will not result in indirect effects.	Mostly NE
Operations and safety improvements	Make improvements to enhance traffic operations and safety including signalization, traffic control, channelization, median treatments, turn pockets/lanes, and other benefits to traffic flow.	Usually insignificant potential to cause land use change	Assessment in BA that details why project has insignificant potential to result in indirect effects.	Mostly NE
Pavers (preservation)	Repave road surface without providing an increase in capacity.	No potential to cause land use change	Assessment in BA that details why project has insignificant potential to result in indirect effects.	Mostly NE
Bridge replacement	Replacing bridges without providing an increase in capacity.	Very limited potential to cause land use change	Assessment in BA that details why project has insignificant potential to result in indirect effects.	Mostly NE
Increased lane capacity, improvements to existing interchanges	Add physical through-lane capacity to an existing roadway.	Potential to cause land use change	Detailed analysis of indirect effects	NLTAA or LTAA, depending on specific impacts
Roadway extension, new roadway, new interchange	Construct extension of roadway, or new roadway on new alignment.	Potential to cause land use change	Detailed analysis of indirect effects	NLTAA or LTAA, depending on specific impacts

NE = no effect; NLTAA = not likely to adversely affect; LTAA = likely to adversely affect.

Indirect effects of transportation projects include changes in land use, such as the development of undeveloped areas when those changes are induced by the action or can reasonably be expected to result from the action.

Indirect Effect Evaluation Process

1. Does the project create a new facility (e.g., new road or new interchange) or increase the capacity of the existing system?

This step identifies the types of transportation improvements that have the potential to influence land use.

New capacity is defined as an increased ability for the transportation system to handle traffic volumes. New roadways or significant changes in capacity or land access have the potential for indirect effects on listed species and their habitat, because these changes potentially cause changes in land development by altering access to land. Other examples are the addition of lanes to a roadway, or the creation of new land access (such as new intersections or interchanges) from an existing road. New interchanges on limited-access roads may lead to changes in land development, but upgrading an existing intersection with a new interchange generally has very limited or no effect on land use. These are generalities, and it is important to consider the specific facts of the project being evaluated. Other examples are given in Table 1.

Many transportation projects are intended to improve traffic flow, relieve congestion, or increase safety. Safety projects often include construction of auxiliary lanes (e.g., for turning, acceleration, or deceleration) on existing roadways, but these new lanes do not increase capacity. Because these projects generally improve operation of the transportation system but do not change the development potential of land, they are not likely to cause land use changes (this applies to many high-occupancy vehicle [HOV] projects that are primarily modal changes). For these types of projects, the indirect effects analysis may be brief. Otherwise, if a transportation project is anticipated to result in a land use change through significant change in land access or capacity improvement, then potential indirect effects on listed species and habitat should be identified and evaluated.

It can be unclear whether a project actually increases capacity or simply redistributes the same traffic in different ways. Land use and transportation planning and engineering expertise may help with this distinction and with the evaluation of likely impacts. Such expertise may also provide information about development patterns in the area and the impacts of comparable projects. When this issue is not reasonably clear, project proponents should confer with the Services in advance to agree on an approach before the completion of a BA.

BA Task: Determine whether proposed project creates a new facility or increases the capacity of the existing system.

Example: WSDOT proposes to construct a new lane in either direction along SR 395 between I-90 and the Tri-Cities to relieve traffic congestion and improve safety. The project will also flatten horizontal curves and establish a divided highway, which will allow a speed limit increase from 55 mph to 65 mph. Between the speed limit increase and the additional lanes, the project will more than double the capacity along this highway segment. The project will not create a new facility, but it will increase the capacity of the existing system.

2. Is new development in the vicinity contingent on the transportation project (i.e., would not occur without the project)?

In some cases, a development is tied by a permit condition (or a building moratorium associated with Growth Management Act concurrency) to certain transportation improvements. In these cases, if the development could not proceed without the transportation improvement and is reasonably certain to result from it, the effects of the development must be considered as part of

the indirect effects of the transportation action. These indirect effects must be addressed in the consultation for the project. However, from the perspective of concurrency with the Growth Management Act rather than ESA consultation, the new development is viewed as the driver. This makes the roadwork necessary as mitigation for the increased traffic caused by that new development. Although the development may be the actual cause of adverse effects on species, development in most cases does not involve a federal nexus and thus may not trigger Section 7 consultation on its own.

BA Task: Check with appropriate local agency public works or planning office to determine whether development projects in the area meet these criteria.

Relevant documents include the transportation element of the comprehensive plan, and the capital facilities plan. This is useful as documentation to support the analysis.

Example: A road-widening project proposes to add two new lanes along Skinny Boulevard, an existing arterial. The project occurs within King County's transportation service area (TSA) 3 as identified in the county's comprehensive plan. The transportation service strategy within TSA 3 is "construct arterials to meet existing and future capacity needs." The county identifies the proposed project as one of several projects considered necessary to meet these future capacity needs. The project is also located in a transportation concurrency zone identified as over threshold where a development moratorium is in place until transportation infrastructure improvements are in place to adequately handle additional traffic. Upon review of the pending transportation concurrency applications, the approval of three development projects is dependent upon the completion of the proposed Skinny Boulevard road-widening project. Following this review, new development is clearly dependent on the completion of the proposed project.

3. Is any development in the vicinity caused by or dependent on the project?

This step identifies any activities that are likely to result from the proposed project, such as residential and commercial development or other land use changes.

This task is complicated by the present high rate of population growth and land development in many parts of Washington. In many cases, transportation projects are being constructed in the context of a developing landscape. Land development is driven by a variety of social and economic factors, in addition to the provision of access. It is difficult to isolate which of these factors are causal in a particular development. Road projects are often built in response to problems resulting from population growth, but only infrequently do they actually trigger the development itself. In most cases, land development generally is not caused by a transportation project, although transportation projects can in some cases influence the rate or type of development.

One approach to identify any land use change caused by a project is to look at existing zoning in areas potentially influenced by the project and consider the build and no-build scenarios for the

road project. The distance from the project will vary with the individual situation. When development in a given area is planned under a no-build scenario, due to existing zoning or land use plans, it is not caused by the road project and is not considered an indirect effect of the road project. When a development is likely to occur only under the build scenario, then the road project may cause land use changes that are not likely to occur otherwise. In that case, the resulting development and land use change is an indirect effect of the project. Table 1 gives some examples for typical projects. While zoning does not constitute a certainty that development will occur without the project, it is reasonable to assume that land use will follow existing plans and zoning, unless there is evidence to the contrary.

In attempting to identify development that could be caused by a transportation project, the focus should be on actions that are reasonably certain to occur in the foreseeable future. Actions that are planned, designed, and developed according to NEPA guidance meet these criteria, but speculative projects probably do not.

BA Task: Seek expertise from planning, traffic engineering, or other areas to conduct this evaluation.

- Review the highway system plan and/or project definition file for the project to identify deficiencies the proposed transportation facility is intended to address.
- Review the comprehensive plan and zoning for the jurisdiction within which the project is located, to determine the relationship between the facility and land use designations, as well as consistency with the capital facilities plan and the transportation element of the comprehensive plan. Pending ordinances that will affect land uses, protected areas, etc., should be considered when specific actions are reasonably certain to occur in the foreseeable future (e.g., final adoption of an ordinance).
- Determine whether the facility is identified as needed infrastructure for planned growth in accordance with concurrency requirements of the plan and the Growth Management Act.
- If the facility is consistent with pertinent land use and transportation plans, then the analysis of effects may demonstrate that the facility is intended to serve planned growth.

The biological assessment should identify whether any areas or specific developments exist in which land use is expected to change as a result of the project. This determination can be made by checking with comprehensive plans and local zoning.

Example: A new interchange and road extension proposed along SR 1 will be constructed between two existing highway interchanges (Figure 2). All of the

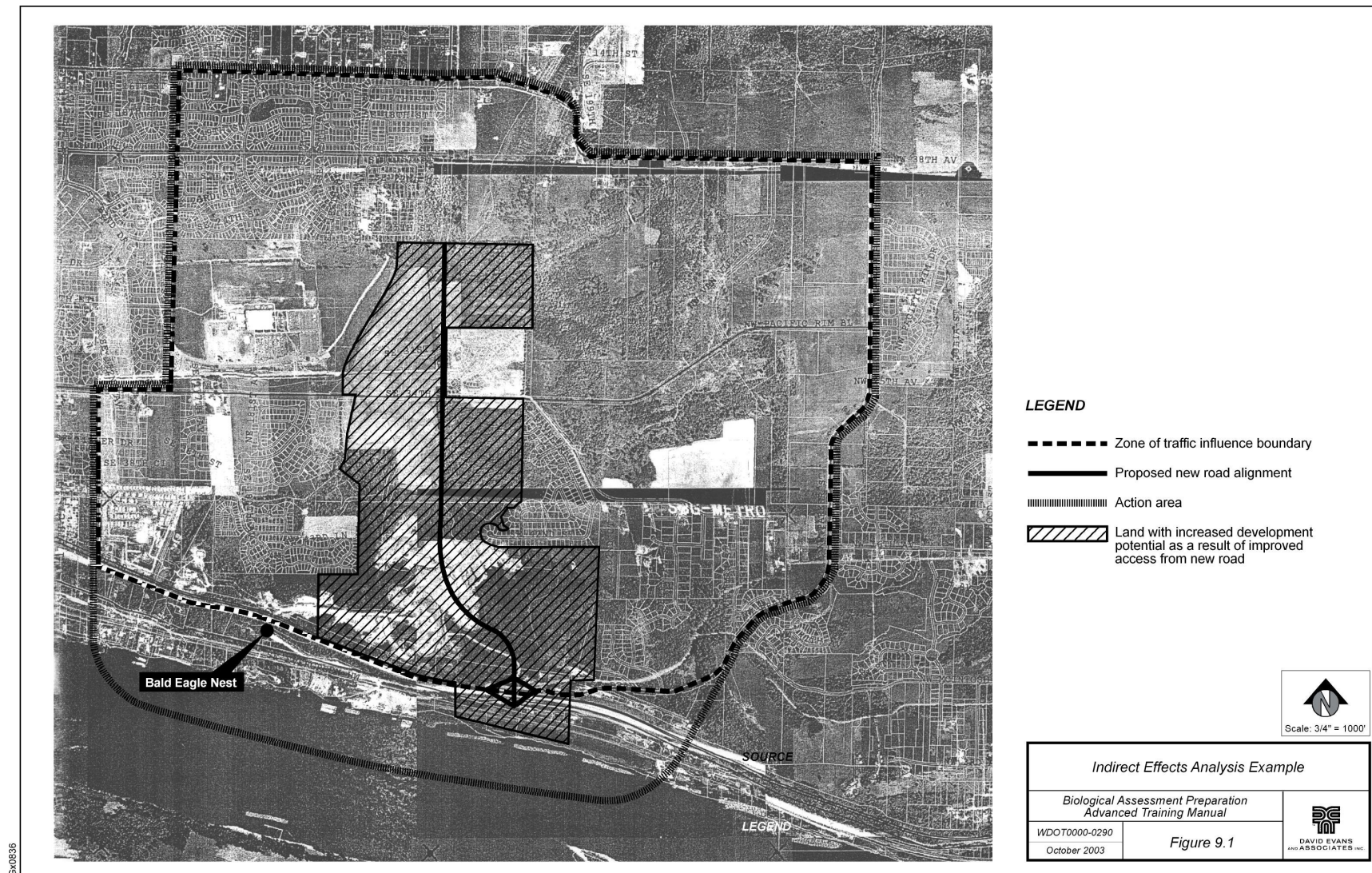


Figure 2. Example of a transportation project that has indirect effects on land use.

roads and adjoining lands that will be accessible from the new interchange are currently accessed from the two existing interchanges. However, the new interchange and road extension will likely result in improved freeway access to much of the area located between the existing interchanges. The project definition indicates that the existing SR 1 access points are insufficient in accommodating the anticipated future highway access needs in the service area.

The city's comprehensive plan identifies the area in the vicinity of the proposed new road and interchange as occurring within the city's urban growth boundary. The city's comprehensive plan identifies this area as a key area for growth because of its proximity to SR 1 and existing commercial centers. The comprehensive plan also identifies the need for improved transportation facilities as the primary limiting factor for growth in this area. As a result, the city has imposed traffic concurrency requirements for future development in this designated growth area.

These proposed improvements are consistent with the city's land use and transportation plans. The above information indicates that the proposed project is intended to serve planned growth.

The construction of the new interchange is proposed to improve access to and from SR 1. Although the proposed project will not provide access to currently inaccessible lands, the undeveloped parcels located along the proposed road extension may have greater development appeal as a result of the improved mobility in the vicinity that results from this project. In this case, development of these parcels may occur as a result of this project, or more likely, their development may occur sooner than it would occur without the completion of this project. Moreover, given the traffic concurrency requirements imposed for this area, future development cannot occur without the proposed transportation improvements.

4. Define the action area.

Indirect effects occur later in time than the original action and may occur outside the area directly affected by the action. The entire area evaluated in the BA for potential project effects on listed species is called the *action area*. When defining the action area it is important to include the areas that are both directly and indirectly affected by the proposed action. The extent of the action area is based on the physical, chemical, and biotic extent of the project effects.

In more complex cases, determining an action area for a transportation project may involve analysis of surface water, traffic patterns, and local land development. The project biologist may need to consult specialists in traffic engineering, transportation land use planning, and other areas in preparing the BA. The purpose is to determine whether a project may ultimately affect a listed species by affecting land use. Defining the action area can be complex for development-related indirect effects. An overly wide definition of the action area leads to more complexity for cumulative effects analysis and a potential to overestimate effects. This can create unnecessary complications, particularly for formal consultation. An undersized action area may fail to adequately characterize the extent of potential impacts. For the BA, the objective is to identify the geographic extent of the effect of land use changes that are caused by the action and

that may ultimately affect listed species or their habitat. In some cases, the action area may not be a single contiguous area but rather a patchy distribution.

BA Task: Choose an appropriate method of defining the action area.

Several methods are suggested below for help in determining the action area. These may be tailored with respect to project specifics and the available information. Alternative methods may be used; however, an explanation of the method used may be necessary. Such alternatives should be discussed with the Services before significant work is undertaken.

Step 1: Characterize the potential zone of influence for change in traffic caused by the project.

- a. The zone of influence for traffic could be estimated by using projected traffic volumes and focusing on any projected changes in traffic patterns due to the proposed action (i.e., the area accessed through a new interchange).
- b. In some cases, the zone of influence for traffic could be generally defined as a corridor along the road, including the project, and continuing to the closest intersection with a major transportation route such as a state highway.
- c. Existing planning units delineated in some jurisdictions as part of land use planning and traffic mitigation analysis could be used to define the action area, or in conjunction with subwatershed boundaries to define the action area.
- d. Detailed analyses of traffic patterns such as origin-destination studies or other studies may be performed as part of planning for certain actions. These may be used where available from project planning materials.

Step 2: Factor in the watershed

To define the action area, overlay the traffic zone-of-influence boundary with the subwatershed (i.e., watershed administrative unit) that coincides. For aquatic species, the BA analysis should cover the geographic area defined by the overlap, plus any downstream portions of the subwatershed.

Example: Under the SR 1 interchange scenario, the zone of influence includes all roads that will be affected by the new interchange. This area includes all locations where access to SR 1 is most direct or quickest using the new interchange, compared to the existing interchanges and the roads from which traffic would be diverted as a result of the proposed action (see Figure 2). The action area includes this zone of traffic influence as well as any surrounding area

that could be affected by actions that occur as a result of the proposed action. This includes a 0.5-mile buffer from lands where development is reasonably certain to occur as a result of the proposed action, to account for possible construction disturbance, as well as the farthest downstream distance where these future actions could affect water quality or hydrology (see Figure 2).

5. Are proposed or listed species or designated critical habitat present within the action area?

In most cases, the immediate project area probably includes designated critical habitat for salmonid evolutionarily significant units (ESUs), distinct population segments (DPSs), or other ranges of listed species. In some cases, a project might involve listed species only because of its indirect effects.

BA Task: Make certain that all listed species and critical habitat within the action area are included in the analysis.

Once the action area is determined, recheck the listing information to ensure that the species list is still adequate for the analysis. The species list should encompass the entire action area, not just the project area. Obtain additional species information if needed. The use of countywide species lists to start with is one way to avoid having to revisit a species list request.

Example: If the action area as determined through the consideration of indirect effects is larger than the action area defined when only considering direct effects, this expanded action area could extend into the range or habitat associated with a listed species that would otherwise not occur within the smaller action area associated only with the direct effects.

Using the SR 1 interchange/road extension example portrayed in Figure 10-2, the bald eagle nest is located over 0.5 miles from the proposed project and likely would be outside of the action area if indirect effects were not considered. However, when considering the potential indirect effects, the bald eagle nest is located within 1,000 feet of future development that would likely be induced by the project (see Figure 10-2). In this example, the bald eagle would probably be included on the species list from USFWS. However, as mentioned above, it is possible that the action area identified when considering indirect effects could extend into the range of species not included on the original species list that was generated based on the proposed project location.

6. If development is contingent or dependent on the project, what potential impacts to the species and habitat will result from the development?

The project biologist should evaluate the development in the action area that is contingent on or likely to occur because of the proposed project. This may include an evaluation of the local jurisdiction's comprehensive plan, likely project-dependent changes in the existing level of development, and likely project-dependent growth boundary changes. This information may be available through the local transportation planning agency.

The key question is whether there will be adverse effects on the species or its habitat. In addition to direct effects on listed species, consider potential impacts on aquatic habitats, adjacent riparian zones, downstream water quality, and properly functioning habitat conditions.

BA Task: Expand the analysis of effects to include effects of the development.

The analysis of the effects of the development should cover the same elements as the analysis of the original project, although it may be necessary to make estimates if future land use actions are involved.

Example: Using the SR 1 interchange/road extension example portrayed in Figure 2, the indirect effects could result in three key forms of impact: 1) loss of habitat from future development dependent or caused by the proposed action, 2) increased disturbance from future construction and population growth that occurs as a result of the proposed action, and 3) water quality impacts from increased impervious surface and pollutant sources.

In addition to direct impacts on habitat, impacts on habitat resulting from future development that could occur due to the proposed action could result in the loss of as much as 160 acres of mixed deciduous-coniferous forest and 100 acres of unforested land consisting of an abandoned gravel pit and fallow pasture.

The active bald eagle nest identified in Figure 2 is located within 0.25 miles of a parcel of land where development could occur as a result of the proposed interchange construction. Suitable bald eagle perching and feeding habitat also occurs on and adjacent to this and other parcels located adjacent to the proposed interchange. Development of these parcels could result in the loss of bald eagle habitat within this active territory. Construction associated with the development of these parcels, as well as future land use activities, could result in increased disturbance to eagles in this nest territory and could lead to nest failure. Increased traffic at the proposed new interchange and road extension could also result in additional noise and visual disturbance to bald eagles.

Based on the existing zoning of the parcels where development could occur as a result of the proposed action, as much as 80 acres of new impervious surface could be generated if each of these parcels is developed to their full density potential. This increase in impervious surface area could have an adverse effect on water quality and hydrology in the action area, in turn affecting listed salmonids that rear in the action area.

7. What rules or measures are in place to help minimize these potential effects?

The BA author should note any protection for listed species and habitat provided by existing local critical area ordinances in the action area. This may include protection for riparian or wetland buffers, stormwater regulations, and implementation and enforcement of existing critical area ordinances.

BA Task: Identify required conditions or measures that may prevent or minimize adverse effects.

The BA should address the following questions: What are the protective measures available to minimize project impacts? Are there factors that would help reduce or minimize the potential effect of development caused by the project? These might include plans or commitments by agencies or project proponents outside the critical area ordinances. Other protective regulations such as conditions of the hydraulic project approval (HPA) should be included where applicable. The results of this assessment should be incorporated into the discussion of the effects of the proposed action on the environmental baseline.

Example: The local jurisdiction currently requires all development to provide treatment of stormwater consistent with the Department of Ecology stormwater manual. The local jurisdiction also has established a critical areas ordinance that regulates development in the vicinity of wetlands and streams. Depending on the class of stream or wetland, buffers ranging from 25 to 100 feet apply to these features. Any permissible unavoidable impacts on critical areas must be mitigated through the implementation of approved enhancement, creation, or restoration measures. All future land use actions are also subject to Section 9 of the Endangered Species Act, the Washington state hydraulic code, and state and federal bald eagle protection rules. Given these existing regulations, development that results from the proposed action will not significantly alter water quality, hydrology, streams, or wetlands, and is not likely to result in significant impacts on bald eagles.

8. If development is contingent or dependent on the project, how will this development affect the environmental baseline conditions?

The potential effects of the action should be compared to the environmental baseline conditions using the NMFS (1996) matrix of pathways and indicators guidance document and any appropriate guidance from USFWS. Measures in place to protect the species or habitat should be considered in this assessment.

BA Task: As part of the effect determination, describe the existing environmental baseline condition and describe how the direct and indirect effects of the action would likely affect it. Would indirect effects of the project degrade, maintain or improve the existing conditions?**9. If development is contingent or dependent on the project, will this development have potential effects on the species?**

If the project has any effects on listed species or designated critical habitat, even small or temporary effects, then a biological assessment must be prepared and ESA Section 7 consultation is required.

BA Task: Combine this analysis with the evaluation of direct effects.

If no indirect effect resulting from any development is likely to result from the action, and there are no other direct or indirect effects, then the project as a whole will have *no effect*. Combine this analysis with the evaluation of direct effects and proceed with the appropriate *no effect* documentation for the project. Adequate information must be provided to explain and support the conclusions of the analysis.

If the project does have potential effects, then proceed with the biological assessment to determine if the effects are significant or discountable.

Example: Because future development is dependent upon completion of the proposed SR 1 interchange/road extension project, the most notable indirect effects of the project include possible development in the vicinity of the interchange and along SR 1 that would not likely occur without the project. Other impacts include a potential accelerated rate of development of lands along the road extension, which will occur eventually, regardless of the proposed action. It is assumed that complete build-out within the action area will result sooner with the proposed project than without these roadway improvements, although this rate of acceleration cannot be quantified, given the difficult task of isolating this factor from the numerous other influences on development.

Because development in the vicinity could affect bald eagle habitat and could result in disturbance to nesting bald eagles, the proposed action could indirectly result in increased impacts on bald eagles. However, the required compliance with existing state and federal laws pertaining to bald eagles will minimize these impacts. Because treatment of stormwater and development in and near critical areas is regulated by the local jurisdiction, indirect impacts on listed fish species and bald eagle are likely to be insignificant and discountable.

10. If development is contingent or dependent on the project, is this development likely to adversely affect the species or critical habitat?

In this step, a determination is made as to the significance of any potential effects on listed species or designated critical habitat. This differentiation will lead to either formal or informal consultation, based on whether the effect is considered insignificant or discountable (informal consultation) or adverse (formal consultation).

Insignificant effects are generally very small in scale, do not reach the level of *take* as defined by the ESA, and cannot be meaningfully measured, detected, or evaluated. *Discountable* effects are those that are extremely unlikely to occur.

An adverse effect is one that cannot be considered insignificant or discountable. If an action significantly degrades the baseline conditions, the Services may consider it an adverse effect. Actions that result in a *take* of individuals or that modify critical habitat are considered to adversely affect the species under consideration. The extent of any adverse effect is considered in the consultation.

BA Task:

If the answer to question 10 (in Figure 1) is *no*, then the determination is *not likely to adversely affect* (NLTAA) for the indirect effects part of the BA. If the direct effects of the project are also NLTAA, then proceed with informal consultation.

If the answer to question 10 is *yes*, then the determination is *likely to adversely affect* (LTAA); the project requires formal consultation. This analysis must be combined with an analysis of the project's direct effects to complete the biological assessment.

If the consultation results in a *no jeopardy* opinion, the Services issue an incidental *take* statement for *take* that cannot be avoided. The Services do not have to authorize *take* for indirect effects over which FHWA has no jurisdiction. The incidental *take* statement includes reasonable and prudent measures (RPMs) to minimize *take*, together with terms and conditions. If the consultation results in a *jeopardy* opinion, reasonable and prudent alternatives may be provided to avoid jeopardy to the species or adverse modification of critical habitat. Also, the Services may make voluntary conservation recommendations to help further reduce potential effects.

As part of formal consultation, the effects of the action must be evaluated in the context of cumulative effects. These are defined in the ESA as the effects of future state, tribal, local, or private activities that are reasonably certain to occur in the foreseeable future within the action area. The larger the extent of the project action area, the more extensive this aspect of the consultation becomes. Once identified, the cumulative effects are evaluated with the direct and indirect effects of the action, to provide the context for the Services' jeopardy/adverse modification determination. Project impacts in areas where baseline conditions are severely degraded are more significant than those where the baseline is functioning well.

Example: Indirect impacts of growth induced by the proposed SR 1 interchange and road extension project *may affect but are not likely to adversely affect* bald eagles.

A *may affect* determination is based on:

- The possibility of disturbance and habitat impacts resulting from induced development at the proposed interchange located within 0.25 miles of a bald eagle nest
- The potential for water quality impacts that could affect bald eagle food resources.

A *not likely to adversely affect* determination is based on:

- The applicability of state and federal laws regulating development activities in the vicinity of bald eagle nests located in the action area

- The applicability of the local agency's critical area ordinance and stormwater treatment requirements minimizing impacts on bald eagle habitat and food resources.

Note that these preliminary effect determinations represent the indirect effects only and must be combined with analysis of the direct effects to reach an overall effect determination for each listed species and critical habitat.

Indirect effects analyses can be very detailed. One of the documents referenced by USFWS as containing a particularly thorough analysis of effects was 15 pages long for the indirect effects analysis alone. This analysis addressed four interrelated projects located adjacent to each other along a single roadway. Because the projects were interrelated, USFWS requested that the indirect effects be collectively assessed for the four projects. This well-written analysis included the following:

- A discussion of the phasing for each of the staged projects
- A detailed description and map of the zone of influence or action area
- The indirect effects analysis itself
- A preliminary effect determination based on the indirect effects analysis for each species in the project action area.

The BA also provided supporting documentation, including the following:

- References for information sources
- Maps of local zoning and areas of approved development within the project action area
- Historical land development by grid section
- Past and present photographs along the proposed alignment
- Several maps illustrating lots with projects under review within the defined zone of influence.